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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,420	08/22/2003	David J. Corisis	2269-4814.1US (01-0040.01	9139

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EXAMINER	
ZARNEKE, DAVID A	
ART UNIT	**PAPER NUMBER**
2891	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,420	CORISIS ET AL.	
	Examiner	Art Unit	
	David A. Zarneke	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☒ Claim(s) *6 and 7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/17/04; 6/4/04;* 12/4/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the another semiconductor device" in line 3. There is insufficient antecedent basis for this limitation in the claim.

For examination purposes the examiner assumed that the phrase was intended to read "another semiconductor device".

Claim 7 recites the limitation "the another semiconductor device" in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim.

For examination purposes the examiner assumed that the phrase was intended to read "another semiconductor device".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Haba et al., US Patent 6,376,904.

Haba (Figures 10 & 11) teaches a method for designing a rerouting element for use with a semiconductor device [1002] including at least one bond pad [1004] positioned substantially centrally on a surface thereof, comprising:

configuring at least one contact location [1108] on a first surface of a substantially planar member [1104], the at least one contact location mirroring a position of the at least one bond pad on the surface of the semiconductor device (figure 11);

configuring at least one conductive trace [1012] location extending from the at least one contact location toward a periphery of the substantially planar member; and

configuring at least one rerouted bond pad location[1010] proximate the periphery the at least one rerouted bond pad location being configured to be exposed beyond a periphery of another semiconductor device upon positioning-said the another semiconductor device over the surface of the semiconductor device.

Regarding claim 2, Haba teaches more than one contact location, each of which mirrors a location of a corresponding bond pad on the device(Figures 10 & 11).

With respect to claim 3, Haba teaches a plurality of contacts positioned over a plurality of conductive trace locations; each conductive trace locations of the plurality of conductive trace locations extending from a corresponding contact location toward the periphery of the substantially planar member (Figures 10 & 11).

As to claim 4, Haba teaches configuring each conductive trace location of the plurality of conductive trace locations to extend toward a single edge of the substantially planar member. (Figure 11).

In re claim 5, Haba teaches wherein configuring at least one rerouted bond pad location comprises configuring a plurality of rerouted bond pad locations, each rerouted bond pad location of the plurality of rerouted bond pad locations being continuous with an end of a corresponding conductive trace location and located proximate the periphery of the substantially planar member (figure 11).

Regarding claim 6, Haba teaches configuring each rerouted bond pad location of the plurality of rerouted bond pad locations is configured to be exposed beyond a periphery of the another semiconductor device upon positioning of the another semiconductor device over the surface of the semiconductor device (figure 3A).

With respect to claim 7, Haba teaches wherein said configuring the at least one rerouted bond pad location comprises configuring the at least one rerouted bond pad location to facilitate connection of a discrete conductive element thereto with the another semiconductor device positioned over the surface of the semiconductor device (figure 3A).

Claims 8-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Haba et al., US Patent 6,376,904.

Haba (figures 3A, 10 & 11) teaches a method for assembling semiconductor devices in a stacked arrangement, comprising:

providing a semiconductor device [1002] with at least one bond pad positioned substantially centrally on a surface thereof; and

positioning a rerouting element {1104] over the surface of the semiconductor device with a contact [1008] of the rerouting element communicating with the at least one bond pad, a circuit trace [1012] of the rerouting element extending laterally toward a periphery of the semiconductor device and establishing communication between the at least one bond pad and at least one rerouted bond pad located proximate a periphery of the semiconductor device at a location where the at least one rerouted bond pad will remain exposed upon positioning another semiconductor device over the surface the semiconductor device.

Regarding claim 9, Haba teaches providing the semiconductor device comprises providing a semiconductor device with a plurality of bond pads, at least some of which are positioned at substantially central locations on the surface (figure 10).

With respect to claim 10, Haba teaches wherein said positioning the rerouting element comprises positioning a rerouting element comprising: a plurality of contacts, each contact of the plurality of contacts being positioned correspondingly to a position of

a corresponding bond pad of the semiconductor device; a plurality of conductive traces, each conductive trace of the plurality of conductive traces extending laterally from a corresponding contact of the plurality of contacts toward the periphery of the semiconductor device; and a plurality of rerouted bond pads, each rerouted bond pad of the plurality of rerouted bond pads being positioned at an end of a corresponding conductive trace, proximate the periphery of the semiconductor device (figures 10 and 11).

As to claim 11, Haba teaches wherein said positioning the rerouting element comprises positioning a rerouting element with each rerouted bond pad of the plurality of rerouted bond pads being positioned proximate a single peripheral edge of the semiconductor device (figure 11).

In re claim 12, Haba teaches wherein said positioning the rerouting element comprises positioning a rerouting element with each rerouted bond pad of the plurality of rerouted bond pads being positioned to be exposed beyond a periphery of the another semiconductor device upon being positioned over the surface of the semiconductor device (figure 3A).

Regarding claim 13, Haba teaches positioning the another semiconductor device over the rerouting element, the at least one rerouted bond pad of the rerouting element being exposed beyond a periphery of the another semiconductor device.

With respect to claim 14, Haba teaches securing the semiconductor device to a carrier substrate [420] (figure 3a).

As to claim 15, Haba teaches wherein said securing comprises securing the semiconductor device to at least one of a circuit board, an interposer, an additional semiconductor device, and leads (figure 3A).

In re claim 16, Haba teaches positioning at least one discrete conductive element [440a] between the at least one rerouted bond pad and a corresponding contact area of the carrier substrate (figure 3A).

Regarding claim 17, Haba teaches wherein said positioning comprises at least one of wire bonding [440a], tape-automated bonding, and thermocompression bonding.

With respect to claim 18, Haba teaches encapsulating [425] at least portions of the semiconductor device, the another semiconductor device, and regions of the carrier substrate adjacent to the semiconductor device (figure 3A).

Claims 1-3, and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Golshan et al., US Patent 5,384,488.

Golshan (Figures 2, 4 & 5) teaches a method for designing a rerouting element for use with a semiconductor device [36] including at least one bond pad [16] positioned substantially centrally on a surface thereof, comprising:

configuring at least one contact location on a first surface of a substantially planar member [22], the at least one contact location mirroring a position of the at least one bond pad on the surface of the semiconductor device (figure 4);

configuring at least one conductive trace [18] location extending from the at least one contact location toward a periphery of the substantially planar member; and

configuring at least one rerouted bond pad location [26] proximate the periphery the at least one rerouted bond pad location being configured to be exposed beyond a periphery of another semiconductor device upon positioning-said the another semiconductor device over the surface of the semiconductor device.

Regarding claim 2, Golshan teaches more than one contact location, each of which mirrors a location of a corresponding bond pad on the device(Figures 2 & 5).

With respect to claim 3, Golshan teaches a plurality of contacts positioned over a plurality of conductive trace locations; each conductive trace locations of the plurality of conductive trace locations extending from a corresponding contact location toward the periphery of the substantially planar member (Figures 2 & 5).

In re claim 5, Haba teaches wherein configuring at least one rerouted bond pad location comprises configuring a plurality of rerouted bond pad locations, each rerouted bond pad location of the plurality of rerouted bond pad locations being continuous with an end of a corresponding conductive trace location and located proximate the periphery of the substantially planar member (figures 2, 4 and 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haba et al., US Patent 6,376,904, as applied to claim 8 above.

Regarding claim 19, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the type of encapsulating used to be glob top encapsulating (MPEP 2144.05(b)). Glob top encapsulating is commonly used in the art.

With respect to claim 20, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the type of encapsulating used to be transfer molding or pot molding (MPEP 2144.05(b)). Transfer molding and pot molding are commonly used in the art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Liu et al., US Patent 6,534,853 teaches an invention similar to the present invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (571)-272-1937. The examiner can normally be reached on M-F 7:30 AM-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Baumeister can be reached on (571)-272-1712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David A. Zarneke
Primary Examiner
March 18, 2005